

We claim:

1. An evacuation system, comprising:
  - a housing including a product package containing a product; and
  - an evacuation member disposed in the housing, wherein the evacuation member engages the product package and applies pressure thereto, such that product in the product package moves toward an outlet in the product package for dispensing.
2. The evacuation system according to claim 1, further comprising:
  - a valve disposed at the outlet of the product package to regulate the flow therefrom.
3. The evacuation system according to claim 2, wherein the valve is a pinch valve.
4. The evacuation system according to claim 1, wherein a pump is coupled to the product package for evacuating the product from the package.
5. The evacuation system according to claim 1, the evacuation system further comprising a driver to move the evacuation member.
6. The evacuation system according to claim 5, wherein the driver is a motor.
7. The evacuation system according to claim 5, wherein a controller opens the valve and drives the driver for a predetermined period, thereby dispensing product from the package.
8. The evacuation system according to claim 7, wherein the controller monitors the voltage applied to the driver, thereby deducing the forces applied to the product package.
9. The evacuation system according to claim 8, wherein the controller operates the evacuation member to preload the package.
10. The evacuation system according to claim 9, wherein the controller maintains the force applied to the product package by the evacuation member below a maximum threshold to ensure that the product package does not rupture.

11. The evacuation system according to claim 7, further comprising an encoder in communication with the driver and the controller, wherein the encoder outputs a signal to the controller indicating the location of the evacuation member.
12. The evacuation system according to claim 11, wherein the controller recognizes a maximum encoder count when the evacuation member has reached full travel, thereby indicating that the product package is empty.
13. The evacuation system according to claim 7, wherein a microswitch is closed when the evacuation member reaches full travel, thereby notifying the controller that the package is empty.
14. The evacuation system according to claim 7, wherein a hall effect sensor is activated when the evacuation member reaches the end of the travel path, thereby signaling the controller of an empty package condition.
15. The evacuation system according to claim 1, wherein the housing further comprises a backing plate to provide a bearing surface for the evacuation member.
16. The evacuation system according to claim 1, wherein the evacuation member adjusts for varying particulate sizes.
17. The evacuation system according to claim 1, wherein the evacuation member comprises at least one roller to engage the product package.
18. The evacuation system according to claim 17, wherein the roller is weighted to move through the travel path due to gravitational forces.
19. The evacuation system according to claim 1, wherein the evacuation member comprises at least one squeegee to engage the product package.
20. The evacuation system according to claim 19, wherein the squeegee is weighted to move through the travel path due to gravitational forces.

21. The evacuation system according to claim 4, further comprising:

a pump driver unit disposed in the housing, wherein the pump is coupled to the pump driver to actuate the pump, thereby evacuating the product from the product package.

22. The evacuation system according to claim 1, further comprising:

a package carrier, the package carrier including a package support and a restraining support hingedly coupled to the package support, wherein a product package is inserted into the package support and the restraining support is closed, thereby easing handling and support during insertion into the housing.

23. The evacuation system according to claim 22, wherein the package carrier includes a pinch-off area, whereby, when the restraining support is closed, product is displaced from an unrecoverable portion of the product package, and the unrecoverable portion is pinched off, such that the product remains in a recoverable portion of the product package.

24. The evacuation system according to claim 23, wherein the pinch-off area creates a product package volume having a bottom with a slope toward the product package outlet, thereby forcing product to move toward a recoverable portion of the product package.

25. The evacuation system according to claim 7, wherein the controller determines a frictional voltage profile for the evacuation member and adds the frictional profile to a working voltage profile, thereby ensuring that the evacuation member applies a desired squeeze force to the product package.

26. A package carrier, comprising:

a package support, the package support comprising a recessed pinch-off area; and  
a restraining support hingedly coupled to the package support, the restraining support comprising a pinch-off face, wherein in an open position, a product package inserts into the

package support, and, in a closed position, the recessed pinch-off area of the package support and the recessed pinch-off face of the restraining support abut, thereby displacing product and sealing off a portion of the package.

27. The package carrier according to claim 26, wherein the pinched off area creates a simulated slope toward the package opening, thereby forcing the product in the package to move toward the opening as the evacuation member moves downward.

28. A method of calibrating a drive bay, comprising:

- a. loading an empty package carrier into a dispensing station;
- b. recording a frictional voltage profile as the evacuation member moves through a full travel cycle; and
- c. adding the frictional voltage profile of the dispensing station to a working voltage profile for evacuation, thereby ensuring that a desired load is applied to a product package.

29. The method of calibrating a drive bay according to claim 28, further comprising:

- d. calibrating a second drive bay to ensure that all drive bays provide a same desired load.

30. A method of evacuating a product package, comprising:

- a. loading a product package into a package carrier;
- b. inserting the loaded package carrier into a dispensing station of a product dispenser; and
- c. moving the evacuation member downward against the product package to force product toward a package outlet.

31. The method of evacuating a product package according to claim 30, further comprising:

- d. feeding a pump attached to the outlet of the product package.

32. The method according to claim 30, wherein step a. further includes:
  - d. moving product out of an unrecoverable portion of the package.
33. The method according to claim 30, further comprising after step a.:
  - d. applying a preliminary squeeze to the product package with the evacuation member.
34. A method of eliminating an unrecoverable portion of a product package, comprising:
  - a. inserting a product package containing a product into a package support of a package carrier, such that an unrecoverable portion of the product package communicates with a recessed pinch-off area of the package support;
  - b. closing a restraining support of the package carrier, such that a pinch-off face of the restraining support abuts with the recessed pinch-off area of the package support, thereby forcing product in the pinch-off area to move to a recoverable portion of the product package.
35. The method according to claim 34, further comprising:
  - c. creating a slope in the accessible volume of the product package with the pinch-off area, thereby forcing the product to move toward the package opening as the product moves downward.
36. A method of evacuating a product package, comprising:
  - a. loading a product package into a dispensing station of an evacuation device;
  - b. applying pressure to the product package with an evacuation member to preload the package, thereby moving product out of the upper areas of the package;
  - c. dispensing a portion of the product from the package;
  - d. sampling the loading on the product package by the evacuation member to determine if the applied load has dropped below a threshold; and

- e. applying pressure with the evacuation member to load the package.

37. The method of evacuating a product package according to claim 36, further comprising:

- f. repeating steps d. through e. to continuously monitor the loading on the product package.

38. A product dispensing system, comprising:

- a primary device; and
- an evacuation system in fluid and control communication with the primary device, such that the primary device provides control signals to the evacuation system to commence a dispensing routine, and further wherein the evacuation system conducts the dispensing routine for delivery of product to the primary device.

39. The product dispensing system according to claim 38, wherein the primary device is a pizza sauce applicator.

40. The product dispensing system according to claim 38, wherein the evacuation system comprises an evacuation member that engages a product package disposed within the evacuation system, and further wherein the evacuation member applies pressure to the product package, such that a product in the product package moves toward an outlet for dispensing.

41. The product dispensing system according to claim 40, further comprising:

- a valve disposed at the outlet of the product package to regulate the flow therefrom.

42. The product dispensing system according to claim 40, wherein a pump is coupled to the product package for evacuating the product from the package.

43. The product dispensing system according to claim 40, wherein the evacuation system further comprises a driver to move the evacuation member.

44. The product dispensing system according to claim 40, wherein a controller opens the valve and drives the driver for a predetermined period, thereby dispensing product from the package.

45. The product dispensing system according to claim 44, wherein the controller monitors the voltage applied to the driver, thereby deducing the forces applied to the product package.

46. The product dispensing system according to claim 44, wherein the controller operates the evacuation member to preload the package.

47. The product dispensing system according to claim 44, wherein the controller maintains the force applied to the product package by the evacuation member below a maximum threshold to ensure that the product package does not rupture.

48. A method of delivering product to a primary device, comprising:

- a. delivering control signals for product requirements from a primary device to an evacuation system;
- b. dispensing product from the evacuation system; and
- c. delivering the dispensed product to the primary device for use.

49. The method of claim 48, wherein the primary device comprises a pizza sauce applicator.